Bestimmen Sie die Basis des Logarithmus:

$\log_x 9 = 2 \quad \Leftrightarrow \quad x^2 = 9 = 3^2 \quad \Rightarrow \quad x = 3$

$\log_x 81 = 4 \quad \Leftrightarrow \quad x^4 = 81 \quad \Rightarrow \quad x = \sqrt[4]{81} = 3$

$\log_x 81 = -2 \quad \Leftrightarrow \quad x^{-2} = 81 = 9^2 = \left(\frac{1}{9}\right)^{-2} \quad \Rightarrow \quad x = \frac{1}{9}$

$\log_x \sqrt{27} = \frac{3}{2} \quad \Leftrightarrow \quad x^{\frac{3}{2}} = \sqrt{27} = \sqrt{3^3} = (3^3)^{\frac{1}{2}} = 3^{\frac{3}{2}} \quad \Rightarrow \quad x = 3$

$\log_x 49 = 2 \quad \Leftrightarrow \quad x^2 = 49 \quad \Rightarrow \quad x = \sqrt{49} = 7$

$\log_x 7 = 1 \quad \Leftrightarrow \quad x^1 = 7 = 7^1 \quad \Rightarrow \quad x = 7$

$\log_x 3 = -1 \quad \Leftrightarrow \quad x^{-1} = 3 \quad \Leftrightarrow \quad \frac{1}{x} = 3 \quad \Rightarrow \quad x = \frac{1}{3}$

$\log_x \left(\frac{1}{32}\right) = -5 \quad \Leftrightarrow \quad x^{-5} = \frac{1}{32} = \frac{1}{2^5}$, aber $x^{-5} = \left(\frac{1}{x}\right)^5 = \frac{1}{x^5} \quad \Rightarrow \quad x = 2$